

In the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1-28. (Canceled)

29. (Previously presented) A solder bump for interconnection of flip chip devices comprising:

a semiconductor surface;

at least one contact pad over said semiconductor surface;

a passivation layer over said semiconductor surface, said passivation layer exposing said at least one contact pad;

an Under-Bump-Metallurgy (UBM) layer over said layer of passivation and said at least one contact pad, lateral dimension of the UBM layer being limited to be within lateral dimension of the at least one contact pad; and

at least one solder compound overlying the UBM layer, wherein the solder compound comprises a flat top surface, a flat bottom surface and convex sidewalls, and the flat top surface is greater than the flat bottom surface before connecting to other components.

30. (Previously Presented) The solder bump of claim 29, said Under Bump Metallurgy layer comprising a layer of chromium followed by a layer of copper followed by a layer of gold.

31. (Previously Presented) The solder bump of claim 29, said Under Bump Metallurgy layer comprising a plurality of sub-layers of different metallic composition.

32. (Previously Presented) The solder bump of claim 29, said passivation layer comprising a plurality of passivation layers.

33. (Original) The solder bump of claim 32, wherein at least one of said plurality of passivation layers is PE Si_3N_4 , SiO_2 a photosensitive polyimide, phosphorous doped silicon dioxide or titanium nitride.

34. (Original) The solder bump of claim 29, said at least one contact pad on said semiconductor surface being electrically connected with a semiconductor device with at least one conductive line of interconnect or with at least one conductive contact point.

35. (Cancelled)

36. (Previously Presented) The solder bump of claim 29, further comprising a seed layer having been deposited over said patterned layer of passivation.

37. (Previously presented) A solder bump for interconnection of flip chip devices comprising:

a semiconductor surface;

at least one contact pad over said semiconductor surface;

a passivation layer over said semiconductor surface, said passivation layer exposing said at least one contact pad;

an Under-Bump-Metallurgy (UBM) layer over said passivation layer and said at least one contact pad, lateral dimension of the UBM layer being limited to a size approximately the same as lateral dimension of the at least one contact pad; and

at least one solder compound overlying the UBM layer, wherein the solder compound comprises a flat top surface, a flat bottom surface and convex sidewalls, and the flat top surface is greater than the flat bottom surface before connecting to other components.

38. (Previously presented) A solder bump for interconnection of flip chip devices comprising:

a semiconductor surface;

at least one contact pad over said semiconductor surface;

a passivation layer over said semiconductor surface, said passivation layer exposing said at least one contact pad;

an Under-Bump-Metallurgy (UBM) layer over said passivation layer and said at least one contact pad; and

at least one solder compound overlying the UBM layer, wherein the solder compound comprises a flat top surface, a flat bottom surface and convex sidewalls, and the flat top surface is greater than the flat bottom surface before connecting to other components.